

CS 101
First Exam 2010 – 2011
Form A

Multiple Choice

Identify the choice that best completes the statement or answers the question. (each one point)

```
int x = 35;
int y = 45;
int z;

if (x > y)
    z = x + y;
else
    z = y - x;

cout << x << " " << y << " " << z << endl;
```

Short Answer

6. Suppose that x, y, z, and w are int variables, and x = 3, y = 4, z = 7, and w = 1; What is the output of the following statements? (5 Points)

		OUTPUT
A	<code>cout << " x == y : " << (x == y) << endl;</code>	x == y: 0
B	<code>cout << " x != z : " << (x != z) << endl;</code>	X != z : 1
C	<code>cout << " y == z - 3 : " << (y == z - 3) << endl;</code>	Y == z - 3: 1
D	<code>cout << " !(z > w) : " << !(z > w) << endl;</code>	!(z > w): 0

E	<code>cout << " x + y < z : " << (x + y < z) << endl;</code>	X + y < z : 0
---	--------------------------------------------------------------------------------------	---------------

7. Suppose a, b, and c are int variables and a = 5 and b = 6. What value is assigned to each variable after each statement executes? If a variable is undefined at a particular statement, report UND (undefined). (9 points)

	a	b	c
a = (b++) + 3;	9	7	und
c = 2 * a + (++b);	9	8	26
b = 4 * (++c) - (a++);	10	99	27

Problem

8. Rewrite the following statement without using *= and ++ (pre-increment and post-increment), assuming that var, a, and b are integers. (5 points)
var *= a++ - ++b;

```
var = var * a - (b+ 1);
a = a + 1;
b = b;
```

9. Rewrite the following statements using if statement: (6 points)

```
int x= -1;
x ? x++ : --x;
x ? cout<<x+1: cout<< x+2;
```

```
Int x = -1;
If(x)
    X = x++;
Else
    X = -X;
if (x)
    cout << x+1;
else
    cout << x + 2
```

10. Write a complete C++ program that reads a number x and then calculates and prints the value of y according to the following equations: (12 points)

$$y = \begin{cases} x^2 - 1 & x \geq 10 \\ 1 & 0 < x < 10; \\ 1 - x^3 & x < 0. \end{cases}$$

```
#include <iostream>
using namespace std;

void main ()
{
    float x,y;
    cout << "Please Enter number x" << endl;
    cin >> x;
    if ( x >= 10)
        y = x*x -1;
    else
        if ( 0 <= x && x < 10)
            y = 1;
        else
            y = 1 - x * x * x;
    cout << "y = " << y << endl;
}
```

11. In the following code, correct any errors that would prevent the program from compiling or running: (rewrite the code). (12 points)

```
include <iostream>

main ()
{
    int a, b;
    bool found;
    cout << "Enter two integers: ";
    cin >> a >> b;
    if a > a * b && 10 < b
        found = 2 * a > b;
    else
    {
        found = 2 * a < b;
        if found
            a = 3;
            c = 15
            if b
            {
                b = 0;
                a = 1;
            }
    }
}
```

```
#include <iostream>

using namespace std;

int main ()
{
    int a, b, c, found;
    cout << "Enter two integers: ";
    cin >> a >> b;

    if (a > a * b && 10 < b)
        found = 2 * a > b;
    else
    {
        found = 2 * a < b;
        if (found)
            a = 3;
        c = 15;
        if (b)
        {
            b = 0;
            a = 1;
        }
    }

    return 0;
}
```

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